



CITY OF NEWTON, MASSACHUSETTS

Traffic Council

David B. Cohen
Mayor

DATE: May 10, 2006

**TO: Christine Samuelson, Chair and
Members of the Public Safety & Transportation Committee**

FROM: Candace Havens, Chair and Members of the Traffic Council

RE: Traffic-Calming Measures

**CC: Board of Aldermen
Mayor David B. Cohen**

The purpose of this memorandum is to provide the Board of Aldermen with some general information on traffic-calming measures. The Traffic Council has also included within this memorandum a suggested process for the review of individual requests for traffic-calming devices.

I. Background

Use of road closures and traffic diverters in the United States dates back to the late 1940s or early 1950s in Montclair, NJ and Grand Rapids, MI. Berkeley, CA appears to have been the first community to establish a full-blown traffic-calming program in 1975 when it adopted a citywide traffic management plan.¹ Since then, various traffic-calming measures have been utilized to control vehicle speed at key points (intersections and crosswalks) or selected segments of roadways (in commercial areas with heavy pedestrian traffic flows or adjacent to school zones).

Because the primary purposes of traffic-calming devices are to help to decrease vehicular speeds, improve driver attentiveness, and improve pedestrian and bicyclist safety, these devices are primarily installed on a "local street", "minor collector" or "major collector," based on the proposed functional road classification system. The reduction in travel speeds may also reduce cut-through traffic as some motorists may divert to alternate routes in order to avoid traffic-calming devices. Diversion to other streets could be either an advantage or disadvantage, depending on the roadway type to which the traffic is being diverted.

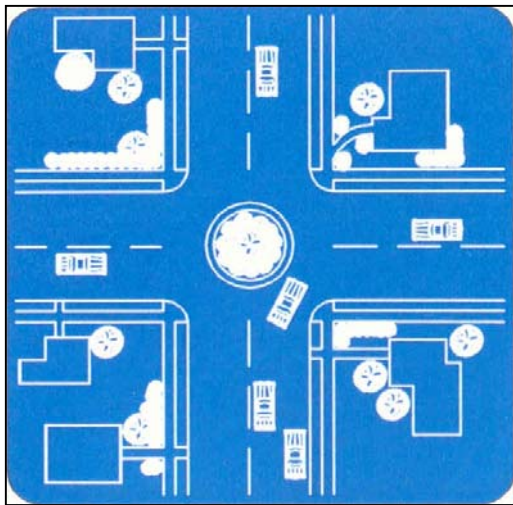
It is important to note that stop signs and traffic lights are not ordinarily considered to be traffic-calming measures because they are intended to control the flow of traffic, as opposed to controlling the speed of traffic. In fact, traffic lights and stop signs can actually exacerbate speeding problems at intersections as some drivers will speed up to make it through a traffic light, and will speed up just after a stop sign.² In addition, the use of stop signs may not necessarily protect pedestrians, as there is no physical mechanism to force the motorist to stop before entering into the crosswalk area.

¹ *Traffic Calming: State of the Practice*, Institute of Transportation Engineers and Federal Highway Administration, August, 1999, Page 14.

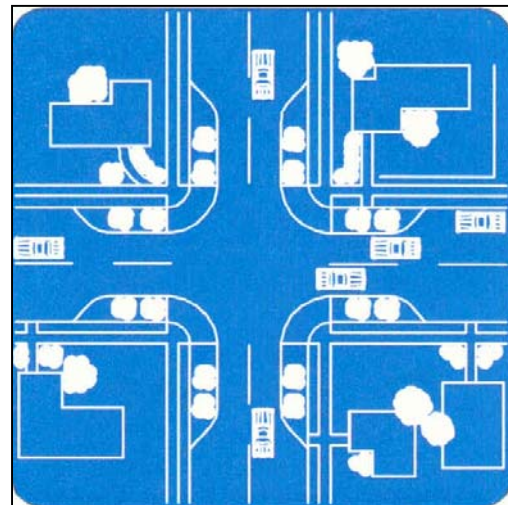
² www.transalt.org/campaigns/nsn/trafficcalming.html.

Although most traffic-calming devices are designed to be physical alterations to the standard roadway and/or curbing, there are a couple of “non-constructed” measures that are used by many communities. On-street parking is considered to be one of the simplest forms of traffic calming, since parked cars have the effect of reducing travel speed. One of the disadvantages of relying on parked cars is that there is no way to guarantee that cars will be parked along the roadways; when vehicles are not parked along the roadway, there may actually be a tendency for drivers to increase their speed as the clear path of travel is widened. Newton has also utilized speed display/driver feedback signage to help reduce speeds by raising awareness of motorists’ speed of travel. The success of this type of measure is dependent upon the motorists making a conscious decision to reduce their speed.

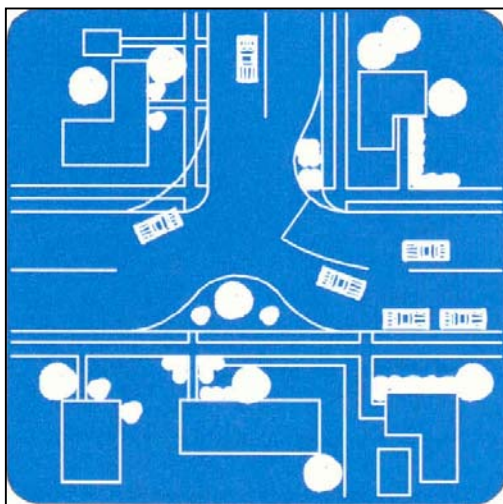
In addition to the “non-constructed” types of traffic calming, there are many different types of traffic-calming devices that require the reconstruction of portions of the roadway and/or curbing. Some traffic-calming devices have been installed in Newton, including the following:



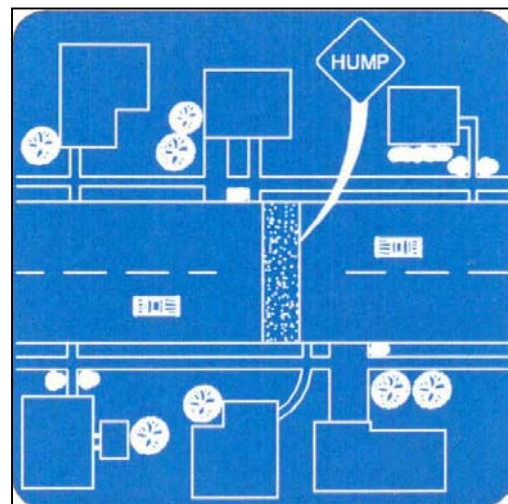
Mini-Roundabout
(such as: Oak Hill Middle School)



Neckdown
(such as: Comm. Ave. Carriageway)

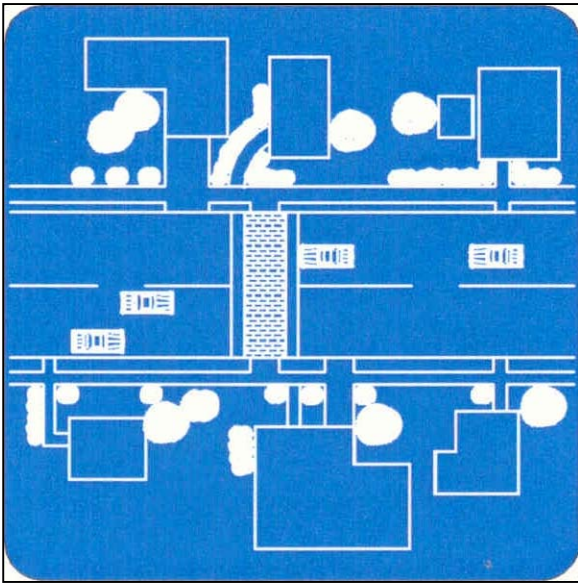


Realigned Intersection
(such as: Park & Tremont Sts.)

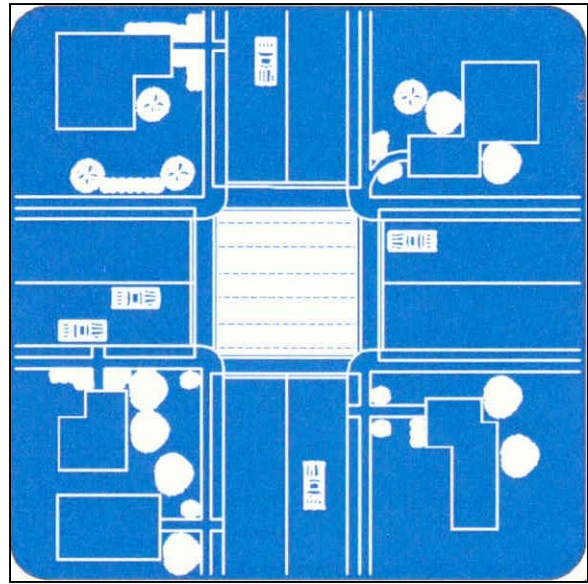


Speed Hump
(such as: Tyler Terrace)

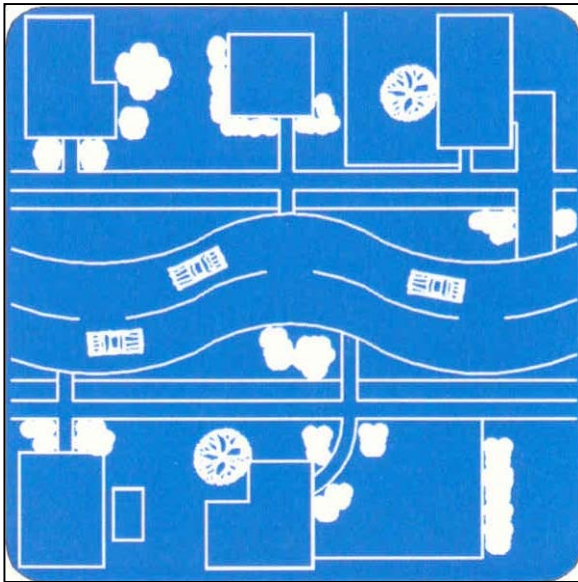
Other types of traffic-calming measures have not yet been constructed in Newton, including:



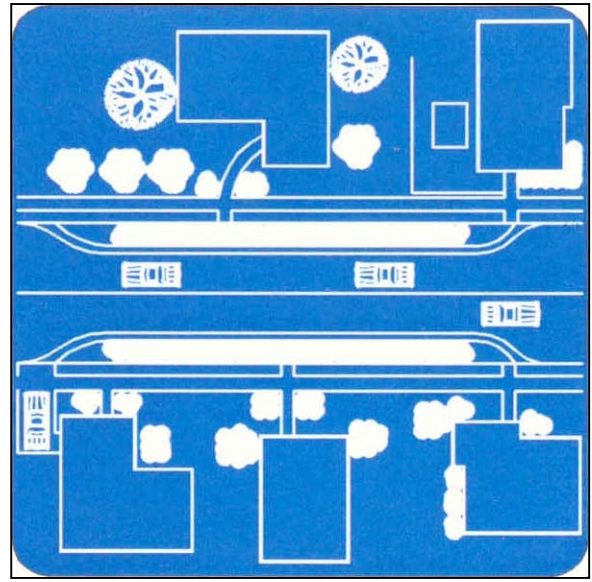
Raised crosswalk



Raised intersection



Chicane



Choker

The eight traffic-calming devices illustrated above are common types of *permanent constructed* devices. There are, in fact, various forms of traffic calming in addition to those pictured and listed above. On November 18, 2005, the Massachusetts Highway Department released a draft version of the *MassHighway Project Development and Design Guidebook*. Chapter 16 of the Design Guidebook, titled “Traffic Calming and Traffic Management” describes 19 forms of traffic calming, and is attached to this memorandum (*See Appendix “A”*).

In the Boston region, the City of Cambridge is often cited as being at the forefront of traffic calming. Cambridge has constructed raised crosswalks, raised intersections, and other forms of traffic calming

throughout the City (Examples of a raised crosswalk and of a raised intersection in Cambridge is shown in the photos below). In addition, raised crosswalks have also been constructed in Belmont, Brookline and other nearby communities.

Raised Crosswalk – Third Street, Cambridge



Raised Intersection – Rindge Street, Cambridge



II. Proposed Process

Because the installation of traffic-calming devices can be expensive and/or controversial, many communities that have begun traffic-calming programs have created evaluation techniques and processes to assure that the limited funds available are allocated to the streets/areas with the greatest needs. The following is a proposed process, with associated evaluation criteria that has been derived from procedures and criteria used in other municipalities, and adapted to Newton's particular political structure and decision-making processes.

1. Petitions for traffic-calming devices are heard by the Traffic Council.

Residents, Aldermen, and/or members of the Traffic Council may docket a petition for traffic and parking changes along a particular street. Any proposed installation of traffic-calming devices would be scheduled for public hearing before the Traffic Council.³

(NOTE: Section 19-27a of the Newton Ordinances currently explicitly prevents the Traffic Council from considering "speed humps.")

All public City-owned streets in Newton may be considered for traffic calming. However, in order to be considered for a traffic-calming measure that alters the vertical profile of the street (such as speed hump/bump, raised crosswalk and/or a raised intersection), it is recommended that the street generally fall into the functional classification of a "local street", "minor collector" or "major collector", based on the proposed functional road classification system⁴.

In evaluating any traffic-calming petition, the Traffic Council may consider whether to recommend using test equipment, if available, prior to permanent construction. This would allow for a study of whether the proposed device is effective in reducing speeds and to evaluate the impacts, if any, of diverted traffic on nearby streets prior to the construction of any permanent traffic-calming device.

2. Traffic Council Conducts Quantitative Analysis.

The Traffic Council would evaluate each traffic-calming petition strictly based on the review criteria established by the Board of Aldermen.

(NOTE: Some suggested criteria are listed in Section III of this memorandum).

The Traffic Council would then forward a recommendation on each petition to the Board of Aldermen.

3. Aldermanic Review.

It is expected that the Board of Aldermen would then evaluate each traffic-calming petition using both the *quantitative* analysis, conducted by the Traffic Council, and additional *qualitative* analyses, not considered by the Traffic Council. The additional qualitative measures could include items such as: funding availability of this project in the context of other petitions, the balance in appropriations for traffic-calming measures throughout the different areas of the City, level of resident support or opposition, level of traffic diversion (motorists seeking alternative routes in order to avoid a traffic-calming device), and the potential impacts on snow removal and/or waste collection. The Massachusetts Highway Department suggests that additional

³ For a detailed listing of traffic calming measures and descriptions of each, refer to: *Project Development and Design Guide, 2005 Edition Public Draft*. Massachusetts Highway Department, chapter 16.

⁴ See Footnote #2.

factors may also include the “character of residential neighborhoods, historical value, type and value of retail business, neighborhood institutions, and aesthetic character (of certain locations)”⁵. In addition, the Board may want to review the individual petitions based on the anticipated capital improvement spending (*Supplemental Capital Budgets and Capital Improvement Plans*) for street reconstruction(s); if a petition is deemed to be a high priority, but funds are limited, tying the installation of the traffic-calming device(s) into a reconstruction or repaving project may allow for the device(s) to be installed at a reduced cost.

The Board may choose to refer petitions to the Public Safety & Transportation and/or Public Facilities Committees to conduct this qualitative analysis, and to review the technical aspects of the petitions, consider the construction timeline, and design of the projects. Depending on the number of requests received in relation to anticipated funding, the Board may want to hold all petitions forwarded by the Traffic Council, and review them all concurrently, either once or twice a year.

The petitions recommended for approval would then be forwarded the Finance Committee, who will review and recommend funding appropriations for projects. Finally, the Board of Aldermen will take final action on the recommended petitions.

4. Installation/Construction.

If the Traffic Council recommends and Board of Aldermen approves temporary/test materials only, then the temporary devices will be installed by the Department of Public Works. After a pre-determined period of time the effectiveness and/or any adverse impacts of the temporary devices will be evaluated by the Traffic Council. If they believe a permanent device is warranted, the Traffic Council will recommend that the installation of permanent devices to the Board.

All permanent devices approved by the Board of Aldermen will be installed by the Department of Public Works (DPW) based on their priority ranking by the Board or during the planned reconstruction, if an associated roadway project exists. DPW staff will also be charged with the monitoring the traffic-calming devices, once installed.

III. Proposed Traffic Council Evaluation Guidelines

As communities across the country continue to implement traffic-calming measures, many have established quantitative criteria (evaluation guidelines) to use to help rank various requests and to help assure that those locations that have the highest level of need are the locations that receive funding. Some of the criteria proposed in Table 1 for use by the Traffic Council are common in other communities. Additional criteria have also been added to reflect Newton’s decision-making process. Note that the highest possible “score”, according to the set of evaluation guidelines shown in Table 1, is eleven, while lowest possible score, based on this set of evaluation guidelines, is –5.

⁵ *Project Development and Design Guide, 2005 Edition Public Draft*. Massachusetts Highway Department, Page 16-37.

TABLE 1: PROPOSED TRAFFIC-CALMING EVALUATION GUIDELINES

Category	Description	Possible Values
Traffic Volume Analysis	Number of vehicle trips on an average weekday.	0, 1 or 2 points < 1,000 trips per day = 0 points; At least 1,000 but < 3,000 = 1 point; At least 3,000 but < 8,000 = 2 points; At least 8,000 trips per day = 0 points.
Speed Analysis	Majority of traffic (at least 85%) exceeds posted speed limit.	0, 1 or 2 points At least 85% of vehicles travel less than 6 mph over posted speed limit = 0 points; At least 85% of vehicles travel 6 mph (or more) over posted speed limit = 1 point; At least 85% of vehicles travel 8 mph (or more) over posted speed limit = 2 points.
Police Department Analysis	Police Department analysis of crash data, documented or observed speeding, number of speeding tickets issued, and overall danger.	0, 1 or 2 point Based on the judgment of the Police Department.
Fire Department Analysis	Fire Department analysis of accessibility and expected impact on emergency vehicle response times and/or rerouting requirements.	-5, -4, -3, -2, -1, or 0 points Based on the judgment of the Fire Department, where 0 = no perceived impacts due to proposed traffic-calming device and -5 = significant impacts.
School Analysis	Proximity to a public or private elementary, middle, or high school.	0, 1, 2 or 3 points School Department Input, based on volume of student crossings = 1 point; Within 1,500 feet of a school = 2 points; Within a school zone = 3 points.
Pedestrian Analysis	<p>Number of observed pedestrian crossings (including bicyclists crossing a street) during a specific hour, as specified by the petitioner or by the Traffic Engineer. To eliminate infrequent special events, the level of pedestrian activity, as measured during the specified hour, should be typical (should reoccur throughout the year).</p> <p>To prevent double counting pedestrians near a school, the pedestrian analysis count should exclude children and guardians traveling to or from school immediately before or after school hours.</p>	0, 1 or 2 points Less than 45 observed pedestrians/bicyclists crossings during an hour = 0 points; At least 45 observed pedestrian crossings during an hour = 1 point; At least 90 observed pedestrian crossings during an hour = 2 points.

APPENDIX A

Traffic Calming and Traffic Management (First Full Draft)

Prepared by the Massachusetts Highway Department
November 18, 2005